Supplementary Table 3. Characteristic of models for predicting MCI to AD conversion

Study sample	Sample size	Outcomes	Follow-up	Baseline age	Number of events	Model	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	AUC
Models for predicting MCI to AD conversion												
Alzheimer's Disease Neuroimaging Initiative (ADNI)[1]	48		median 84 months	mean 71.8 years for MCI convert, mean 75.7 for MCI non-convert	24	ADAS-cog TOTALMOD, MMSE and ^{18}F-FDG SUVR of posterior cingulate	96.4	81.2			83.6	0.93
						MMSE, and ^{11}C-PiB SUVR of medial temporal	77.8	90.4			88.5	0.92
Alzheimer's Disease Neuroimaging Initiative (ADNI)[2]	94		1 years	mean 76 years	24	CSF Aβ42, t-tau, and p-tau						0.67
	89		1.5 years	mean 76 years	30	CSF Aβ42, t-tau, and p-tau						0.60
	85		2 years	mean 76 years	40	CSF Aβ42, t-tau, and p-tau						0.61
	69		3 years	mean 76 years	39	CSF Aβ42, t-tau, and p-tau						0.61
	45		4 years	mean 78 years	30	CSF Aβ42, t-tau, and p-tau genotypes, and analyte levels measured in the CSF and plasma (2 year)						0.68

Supplementary Table 3. Characteristic of models for predicting MCI to AD conversion

Study sample	Sample size	Outcomes	Follow-up	Baseline age	Number of events	Model	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	AUC
	33		5 years	mean 77 years	22	CSF Aβ42, t-tau, and p-tau						0.67
	16		6 years	mean 78 years	11	CSF Aβ42, t-tau, and p-tau						0.63
	68		3 years	mean 76 years	39	CSF Aβ42, t-tau, and p-tau	88.0	70.0			80.0	
Alzheimer's Disease Neuroimaging Initiative (ADNI)[3]	370		2.9 years	mean 75.3 years		MRI features from hippocampal volumetry, multi-template tensor-based morphometry, and voxel-based morphometry	69.0	66.0			67.0	0.72
						MRI features, MMSE, APOE	71.0	67.0			69.0	0.74
						MRI features, MMSE, APOE, CSF A β 42, t-tau and p-tau levels, ADAS-Cog	74.0	66.0			70.0	0.76
AddNeuroMed	123		1 year	mena 73.8 years		MRI features from hippocampal volumetry, multi-template tensor-based morphometry, and voxel-based morphometry	74.0	82.0			81.0	0.79
						MRI features, MMSE, APOE	80.0	83.0			82.0	0.82
						MRI features, MMSE, APOE, CERAD tests	78.0	83.0			82.0	0.83
DESCRIPA	237		2.2 years	mean 70.2 years		MRI features from hippocampal volumetry, multi-template tensor-based morphometry, and voxel-based morphometry	62.0	75.0			72.0	0.77
						MRI features, MMSE, APOE	68.0	78.0			75.0	0.78

Supplementary Table 3. Characteristic of models for predicting MCI to AD conversion

Study sample	Sample size	Outcomes	Follow-up	Baseline age	Number of events	Model	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	AUC
						MRI features, MMSE, APOE, CSF A β 42, t-tau and p-tau levels, neuropsychological tests of learning, memory, language, executive function, and visuo-construction	66.0	78.0			75.0	0.81
Kuopio MCI study	145		2.6 years	mean 71.5 years		MRI features from hippocampal volumetry, multi-template tensor-based morphometry, and voxel-based morphometry	69.0	67.0			67.0	0.73
						MRI features, MMSE, APOE	70.0	67.0			68.0	0.74
						MRI features, MMSE, APOE, CSF A β 42, t-tau and p-tau levels, Logical Memory Test from the Wechsler Memory Scale–Revised, Block Design and Vocabulary from the Wechsler Adults Intelligence Scale, Buschke Selective Reminding Test, Copy a Cube-test, and Constructional Praxis for CERAD	71.0	70.0			70.0	0.76
Combined cohort of ADNI, AddNeuroMed, DESCRIPA and Kuopio MCI study						MRI features from hippocampal volumetry, multi-template tensor-based morphometry, and voxel-based morphometry	69.0	69.0			69.0	0.74
						MRI features, MMSE, APOE	70.0	70.0			70.0	0.76

Supplementary Table 3. Characteristic of models for predicting MCI to AD conversion

Study sample	Sample size	Outcomes	Follow-up	Baseline age	Number of events	Model	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	AUC
Alzheimer's Disease Neuroimaging Initiative (ADNI)[4]	382		up 36 months (mean 2.9 years)	55–90 years, mean 75 years	179	gender, difficulty shopping alone, difficulty remembering appointments, stubborn/resistive to help, upset when separated, number of words recalled, orientation and Clock Test score						0.71
Alzheimer's Disease Neuroimaging Initiative (ADNI)[5]	371		mean 20.44 months	55–90 years	150	AVLT delayed, logical memory delayed and left middle temporal lobe thickness (2 years)	56.0	82.0	65.0	75.0		0.80
Alzheimer's Disease Neuroimaging Initiative (ADNI)[6]	372		mean 20.45 months	55–91 years	151	AVLT delayed, logical memory delayed and left middle temporal lobe thickness (4 years)	66.0	70.0	65.0	70.0		0.77
						AVLT delayed, CDT (4 years)	58.0	74.0	65.0	67.0		0.78
Alzheimer's Disease Neuroimaging Initiative (ADNI)[7]	121		24 months	77	36	age, gender, MMSE, APOE4						0.74
						age, gender, MMSE, APOE4, ^{18}F-FDG PET imaging (posterior cingulate hypometabolism)	91.7	62.4	51.0	95.0		0.80

Supplementary Table 3. Characteristic of models for predicting MCI to AD conversion

Study sample	Sample size	Outcomes	Follow-up	Baseline age	Number of events	Model	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	AUC
Alzheimer's Disease Neuroimaging Initiative (ADNI)[8]	319		4 years	mean 74.90 for non-converter, mean 74.49 for converter	142	FAQ: ADL, APOE genotype, 4 ADAS-cog subscore, LDEL, volume (white matter parcellation) of left hippocampus, surface area of left rostral anterior cingulate, volume (cortical parcellation) of left entorhinal, volume (white matter parcellation) of right cerebellum cortex, volume (cortical parcellation) of right inferior parietal, Trail making test: part A, volume (cortical parcellation) of left cunceus, volume (cortical parcellation) of left temporal pole						0.86
Alzheimer's Disease Neuroimaging Initiative (ADNI)[9]	141		24 months	mean 74.3 for non-converter, mean 75.02 for converter	56	cortical volume of right middle temporal gyrus, average thickness of left entorhinal cortex, left retrosplenial cortex, left middle temporal gyrus, right inferior parietal cortex, subcortical volume of left and right hippocampus; CSF t-tau/Aβ1–42, p-tau181p/Ab1–42; FAQ, LM delayed recall, LM immediate recall, AVLT delayed recall and AVLT trials 1–5	96.4	48.3			67.13	0.80
Alzheimer's Disease Neuroimaging Initiative (ADNI)[10]	397		53 months	mean 74.8	164	ADAS13, LDEL						0.68
						ADAS13, CDRSB						0.68
						ADAS13, the cortical thickness of the right inferior temporal lobe						0.68
Antwerp	40		18	mean	24	the Memory Impairment Screen plus	71.5	91.5	71.5	91.5	87.0	0.93

Supplementary Table 3. Characteristic of models for predicting MCI to AD conversion

Study sample	Sample size	Outcomes	Follow-up	Baseline age	Number of events	Model	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	AUC
Middelheim memory clinic[11]			months	75.4 years								
Neuropsychology Service of the University Hospital 'Policlinico Gemelli' in Rome[12]	270		3 years	mean 71.63 for non-converter, mean 73.1 for converter	80	RAVLT Immediate recall						0.66
						RAVLT Immediate recall (education-corrected)						0.64
						RAVLT Immediate recall (age-corrected)						0.64
						RAVLT Immediate recall (age and education corrected)						0.61
						RAVLT Recognition delayed recall						0.74
						RAVLT Recognition delayed recall (education-corrected)						0.73
						RAVLT Recognition delayed recall (age-corrected)						0.73
						RAVLT Recognition delayed recall (age and education corrected)						0.72

Supplementary Table 3. Characteristic of models for predicting MCI to AD conversion

Study sample	Sample size	Outcomes	Follow-up	Baseline age	Number of events	Model	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	AUC
						RAVLT Immediate recall, RAVLT Recognition delayed recall						0.74
						RAVLT Immediate recall, RAVLT Recognition delayed recall (age-corrected)						0.72
						RAVLT Immediate recall, RAVLT Recognition delayed recall (education-corrected)						0.74
						RAVLT Immediate recall, RAVLT Recognition delayed recall (age and education corrected)						0.72
Patients from Memory Clinic of the Catholic University and the Behavioral Neurology laboratory of the IRCCS Santa Lucia[13]	242		2 years	mean 72.22 years	55	Episodic Memory Score (RAVLT-immediate and delayed recall; delayed recognition; Rey-Osterrieth Figure-delayed recall)						0.77
						RAVLT-delayed recall						0.62
						RAVLT-delayed recognition accuracy						0.65

Supplementary Table 3. Characteristic of models for predicting MCI to AD conversion

Study sample	Sample size	Outcomes	Follow-up	Baseline age	Number of events	Model	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	AUC
						ROCF-delayed recall						0.54
Alzheimer's Disease Neuroimaging Initiative (ADNI)[14]	163		minimum 3 years	mean 74.75 for non-converter, mean 74.20 for converter	86	age, education, APOE4, sex, MMSE, average rate of MMSE change during time interval, CDRSB, average rate of CDRSB change during time interval, ADAS11, average rate of ADAS11 change during time interval, ADAS13, left hippocampal volumetric integrity (LHVI), average rate of LHVI change during time interval, right hippocampal volumetric integrity (RHVI), average rate of RHVI change during time interval	86.0	78.2			82.3	0.83
patients from the Department of Geriatric Medicine, Karolinska niversity Hospital Huddinge, Stockholm, Sweden[15]	83		mean 44 months	mean 59.7 for non-converter, mean 63.5 for converter	26	parietal glucose metabolic rate, CSF total tau						0.83

Abbreviations: ^{11}C-PiB: ^{11}C-Pittsbrugh Compound-B; ^{18}F-FDG: ^{18}F-fluorodeoxyglucose; A β 42: β -amyloid 42; ADAS-Cog: Alzheimer's Disease Assessment Scale-cognitive subscale; ADAS11: Alzheimer's Disease Assessment Scale with 11 items; ADAS13: Alzheimer's Disease Assessment Scale with 13 items; ADL: Activities of Daily Living; AVLT: Auditory Verbal Learning Test; CDRSB: Clinical Dementia Rating Sum of Boxes; CDT: Clock Drawing Test; CERAD: Consortium to Establish a Registry for Alzheimer's Disease; CSF: cerebrospinal fluid; FAQ: Functional Assessment Questionnaire; LDEL: logical memory delayed; LM: logical memory; MMSE: Mini Mental State Examination; MRI: magnetic

resonance imaging; P-Tau: phosphorylated Tau; PET: positron emission tomography; RAVLT: Rey Auditory–Verbal Learning Test; ROCF: Rey-Osterrieth's Complex Figure; SUVR: Standard uptake value ratio; T-Tau: total Tau.

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